

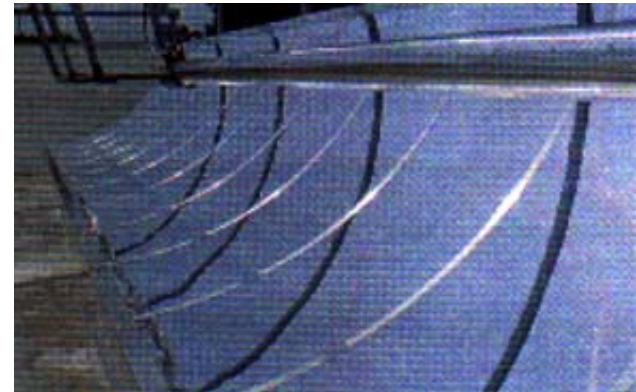
# Modular Trough-Powered Electric Systems

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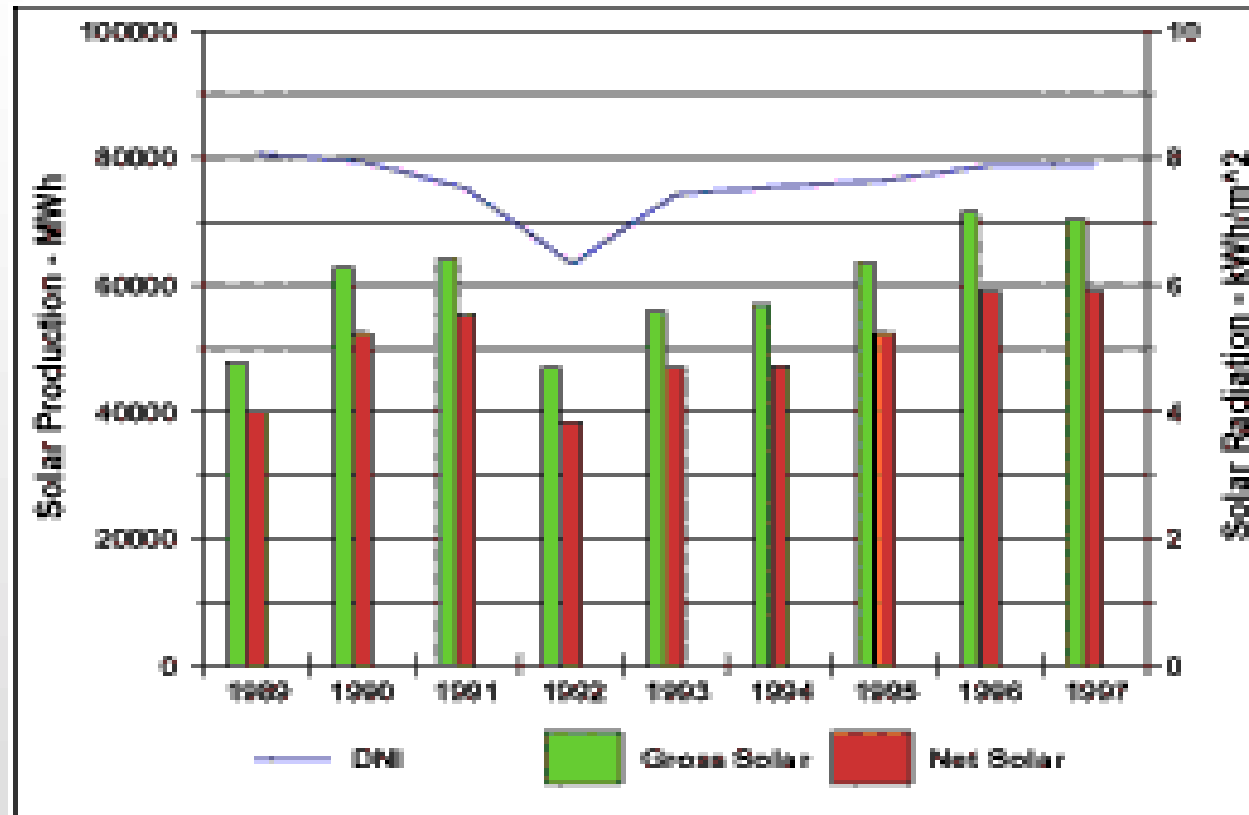
Third Annual Parabolic Trough Workshop  
June 18, 2000

Duke Solar Energy LLC  
Randy Gee

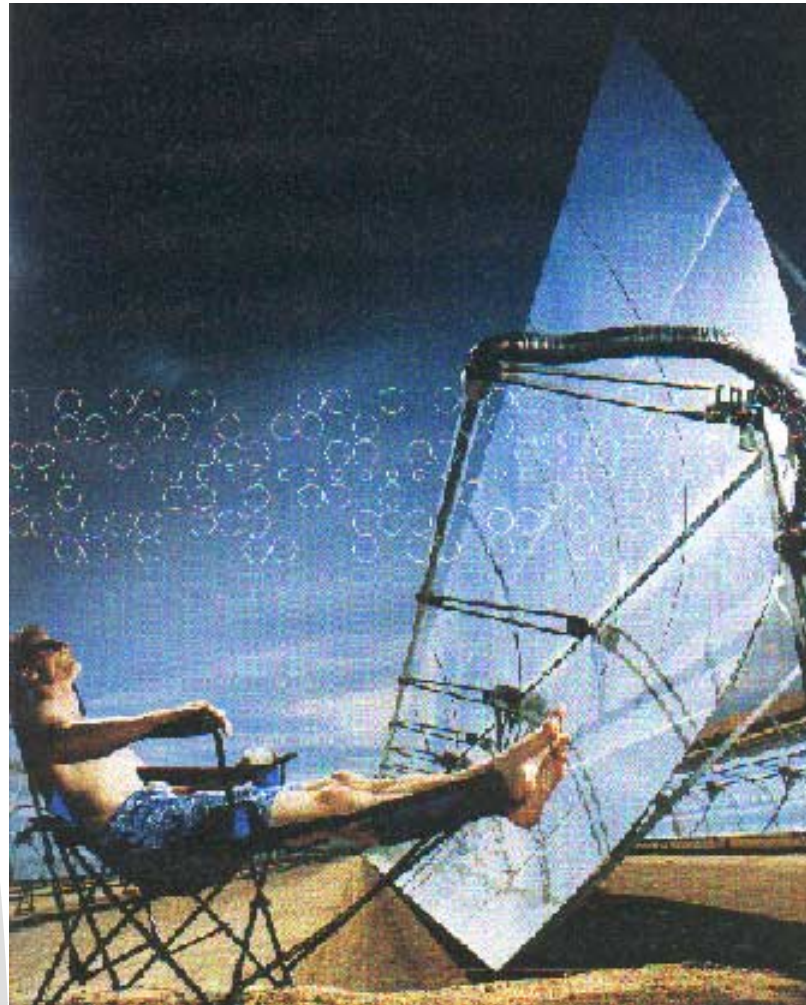
# Troughs Have Commercial Status



# Troughs are Reliable, Proven, and Performance Is High



# Except for One System.....



7/12/00

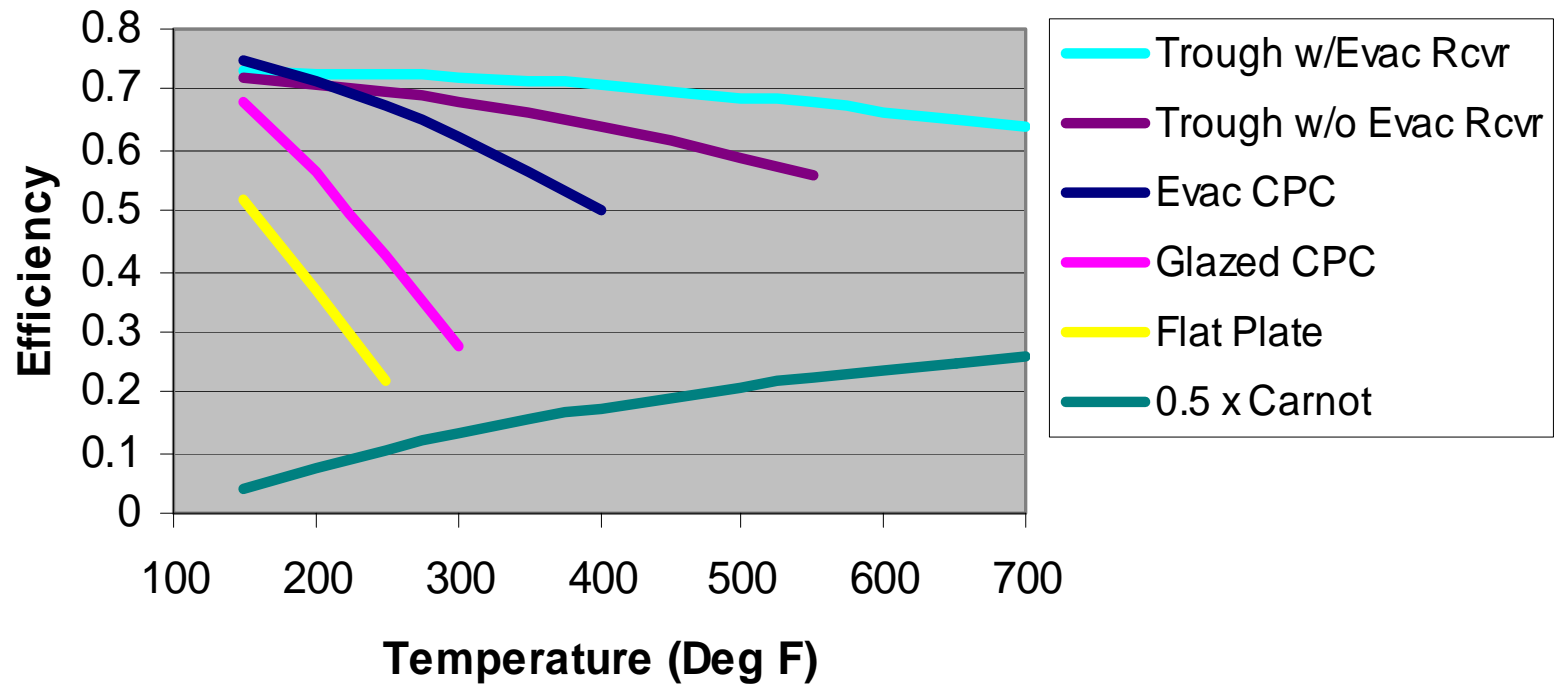
Duke Solar Energy LLC

## Solar-Driven Heat Engines

Temperature vs. Efficiencies

Peak Collector Efficiencies Shown

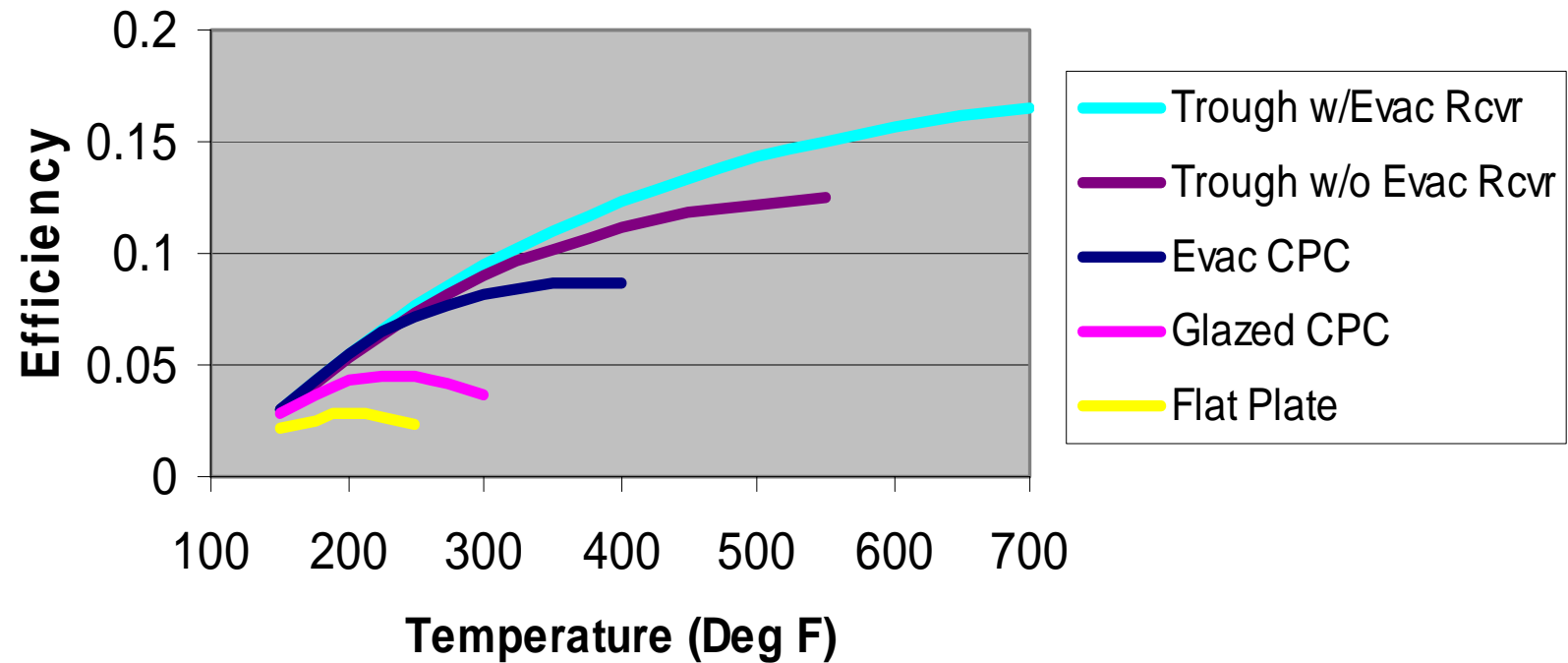
$T_{low} = 100$  F for Carnot Effic. Shown



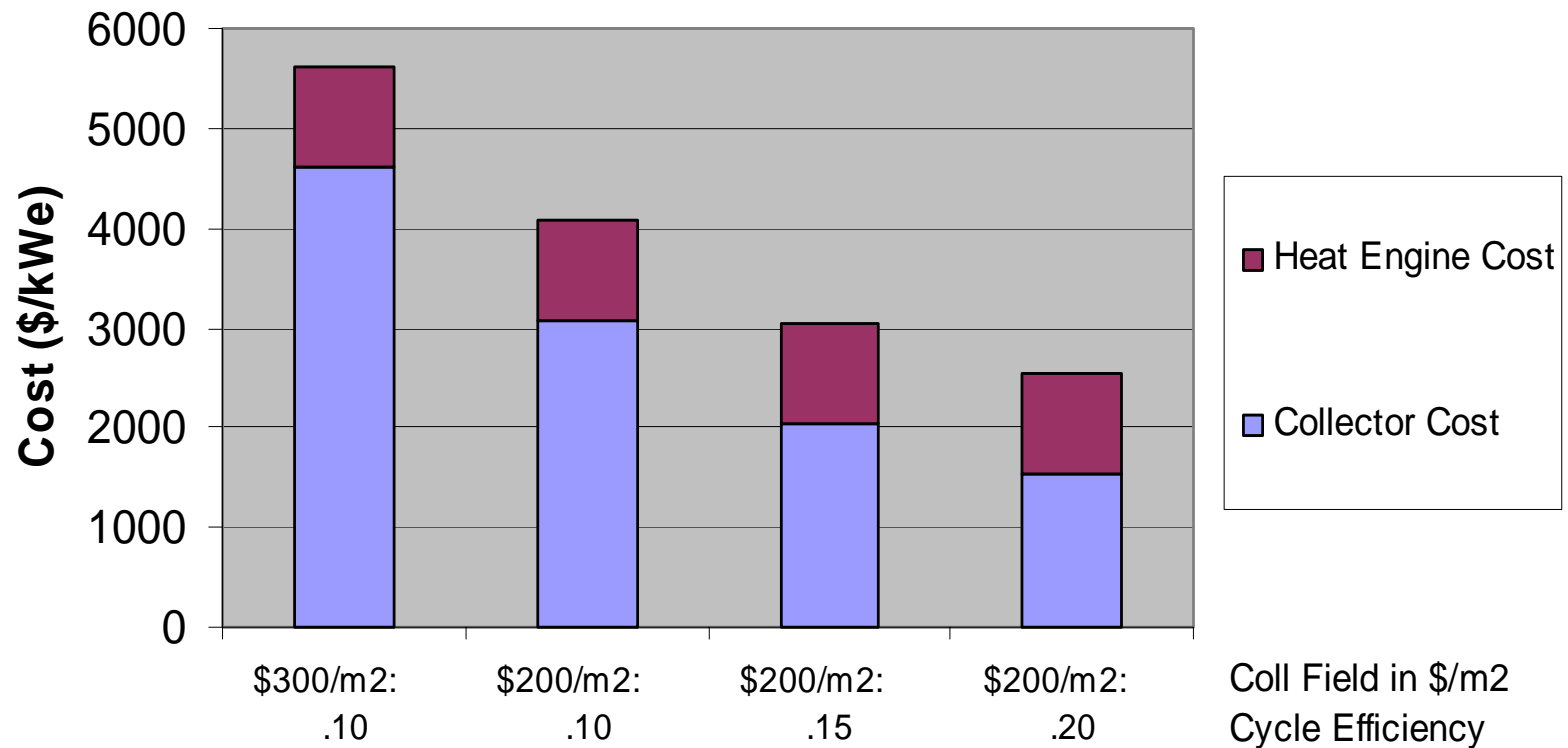
## Solar-Driven Heat Engines

Product of Collection Efficiency and Heat Engine Efficiency

Heat Engine Cycle Efficiency =  $.5 \times \text{Carnot}$



## System Cost Variations Solar-Driven Heat Engines



## Value of Higher Efficiency Heat Engine Assumes \$.10/kWh and Electric-Only System.

